1. If the circles $x^2+y^2=a^2$ and $x^2+y^2-2gx+g^2-b^2=0$ touch each other externally, then

(a) $g=ab$ (b) $g^2=a^2+b^2$

(c) $g^2=ab$ (d) $g=a+b$

2. For the given circles $x^2+y^2-6x-2y+1=0$ and $x^2+y^2+2x-8y+13=0$, which of the following is true

(a) One circle lies inside the other

(b) One circle lies completely outside the other

(c) Two circle intersect in two points

(d) They touch each other

3. A circle passes through (0, 0) and (1, 0) and touches the circle $x^2+y^2=9$, then the centre of circle is

(a) $\left(\frac{3}{2},\frac{1}{2}\right)$ (b) $\left(\frac{1}{2},\frac{3}{2}\right)$

(c) $\left(\frac{1}{2},\frac{1}{2}\right)$ (d) $\left(\frac{1}{2},\pm\sqrt{2}\right)$

4. If $x^2+y^2+px+3y-5=0$ and $x^2+y^2+5x+py+7=0$ cut orthogonally, then p is

(a) $\frac{1}{2}$ (b) 1

(c) $\frac{3}{2}$ (d) 2

5. The point of contact of the given circles $x^2+y^2-6x-6y+10=0$ and $x^2+y^2=2$, is

(a) (0, 0) (b) (1, 1)

(c) (1, –1) (d) (–1, –1)

6. From three non- collinear points we can draw

(a) Only one circle (b) Three circle

(c) Infinite circles (d) No circle

7. The point (2, 3) is a limiting point of a coaxial system of circles of which $x^2+y^2=9$ is a member. The co-ordinates of the other limiting point is given by

(a) $\left(\frac{18}{13},\frac{27}{13}\right)$ (b) $\left(\frac{9}{13},\frac{6}{13}\right)$

(c) $\left(\frac{18}{13},-\frac{27}{13}\right)$ (d) $\left(-\frac{18}{13},-\frac{9}{13}\right)$

8. The equation of the circle having its centre on the line $x+2y-3=0$ and passing through the points of intersection of the circles $x^2+y^2-2x-4y+1=0$ and $x^2+y^2-4x-2y+4=0$, is

(a) $x^2+y^2-6x+7=0$

(b) $x^2+y^2-3y+4=0$

(c) $x^2+y^2-2x-2y+1=0$

(d) $x^2+y^2+2x-4y+4=0$

9. If a circle passes through the point (1, 2) and cuts the circle $x^2+y^2=4$ orthogonally, then the equation of the locus of its centre is

(a) $x^2+y^2-3x-8y+1=0$

(b) $x^2+y^2-2x-6y-7=0$

(c) $2x+4y-9=0$

(d) $2x+4y-1=0$

10. Circles $x^2+y^2-2x-4y=0$ and $x^2+y^2-8y-4=0$

(a) Touch each other internally

(b) Touch each other externally

(c) Cuts each other at two points

(d) None of these

11. The two circles $x^2+y^2-4y=0$ and $x^2+y^2-8y=0$

(a) Touch each other internally

(b) Touch each other externally

(c) Do not touch each other

(d) None of these

12. The equation of a circle passing through points of intersection of the circles $x^2+y^2+13x-3y=0$ and $2x^2+2y^2+4x-7y-25=0$ and point (1, 1) is

(a) $4x^2+4y^2-30x-10y-25=0$

(b) $4x^2+4y^2+30x-13y-25=0$

(c) $4x^2+4y^2-17x-10y+25=0$

(d) None of these

13. The locus of centre of a circle passing through (a, b) and cuts orthogonally to circle $x^2+y^2=p^2$, is

(a) $2ax+2by-(a^2+b^2+p^2)=0$

(b) $2ax+2by-(a^2-b^2+p^2)=0$

(c) $x^2+y^2-3ax-4by+(a^2+b^2-p^2)=0$

(d) $x^2+y^2-2ax-3by+(a^2-b^2-p^2)=0$

14. The equation of the circle which intersects circles $x^2+y^2+x+2y+3=0$, $x^2+y^2+2x+4y+5=0$ and $x^2+y^2-7x-8y-9=0$ at right angle, will be

(a) $x^2+y^2-4x-4y-3=0$

(b) $3(x^2+y^2)+4x-4y-3=0$

(c) $x^2+y^2+4x+4y-3=0$

(d) $3(x^2+y^2)+4(x+y)-3=0$

15. The equation of the circle through the points of intersection of $x^2+y^2-1=0$, $x^2+y^2-2x-4y+1=0$ and touching the line $x+2y=0$, is

(a) $x^2+y^2+x+2y=0$ (b) $x^2+y^2-x+20=0$

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(c) $x^2+y^2-x-2y=0$ (d) $2(x^2+y^2)-x-2y=0$

16. If the circles $x^2+y^2-9=0$ and $x^2+y^2+2ax+2y+1=0$ touch each other, then a =

(a) $-4/3$ (b) 0
(c) 1 (d) 4/3

17. The equation of the circle which passes through the origin, has its centre on the line $x+y=4$ and cuts the circle $x^2+y^2-4x+2y+4=0$ orthogonally, is

(a) $x^2+y^2-2x-6y=0$ (b) $x^2+y^2-6x-3y=0$
(c) $x^2+y^2-4x-4y=0$ (d) None of these

18. Two given circles $x^2+y^2+ax+by+c=0$ and $x^2+y^2+dx+ey+f=0$ will intersect each other orthogonally, only when

(a) $a+b+c=d+e+f$ (b) $ad+be=c+f$
(c) $ad+be=2c+2f$ (d) $2ad+2be=c+f$

19. The condition of the curves $ax^2+by^2=1$ and $a'x^2+b'y^2=1$ to intersect each other orthogonally, is

(a) $\frac{1}{a}-\frac{1}{a'}=\frac{1}{b}-\frac{1}{b'}$ (b) $\frac{1}{a}+\frac{1}{a'}=\frac{1}{b}+\frac{1}{b'}$
(c) $\frac{1}{a}+\frac{1}{b}=\frac{1}{a'}+\frac{1}{b'}$ (d) None of these

20. The radical centre of the circles $x^2+y^2+4x+6y=19, x^2+y^2=9$ and $x^2+y^2-2x-2y=5$ will be

(a) (1, 1) (b) (−1, 1)
(c) (1, −1) (d) (0, 1)

ANSWER-KEY

1	d	2	d	3	d	4	a	5	b
6	a	7	a	8	a	9	c	10	a
11	a	12	b	13	a	14	d	15	c
16	a,d	17	c	18	c	19	a	20	a

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